Hunting Activities in Forest Camps among the Baka Hunter–gatherers of Southeastern Cameroon

AUTHOR(S):

HAYASHI, Koji

CITATION:

HAYASHI, Koji. Hunting Activities in Forest Camps among the Baka Hunter–gatherers of Southeastern Cameroon. African Study Monographs 2008, 29(2): 73-92

ISSUE DATE:

2008-07

URL:

https://doi.org/10.14989/66227

HUNTING ACTIVITIES IN FOREST CAMPS AMONG THE BAKA HUNTER-GATHERERS OF SOUTHEASTERN CAMEROON

Koji HAYASHI
National Museum of Ethnology

ABSTRACT This paper analyzes the hunting activities of Baka hunter-gatherers at their forest camps. The Baka currently use two types of hunting camps: sedentary camps at fixed sites and migratory camps that shift location. I analyzed the two types of camps based on (1) camp location and period of use, (2) migration patterns of camp members, (3) hunting techniques (snare and gun hunting), and (4) relation to agricultural activities. Although the Baka are regarded as hunter-gatherers, they have undergone agriculturalization and sedentarization for several decades. The analyses in this paper place the current state of their hunting activity in the above context and suggest how individualized and low-effort hunting techniques such as snare and gun hunting are adaptive to forest camp activities.

Key Words: Baka hunter-gatherers; Hunting Camp; Snare; Gun; Dependence on Agriculture.

INTRODUCTION

Various studies have examined the migratory lives of Pygmy hunter-gatherers living in African tropical rainforests. Prominent groups studied include the Mbuti (Harako, 1976; Tanno, 1977; Ichikawa, 1983) and the Efe (Terashima, 1983), who live in the Ituri forest of the Democratic Republic of Congo (formerly Zaire), and the Aka, located in the Republic of Congo and the Central African Republic (Bahuchet, 1985; Takeuchi, 1991; 1995; Kitanishi, 1995; Noss, 2000).

The Baka of southeastern Cameroon (Fig. 1), the focus of this paper, are hunter-gatherers but have undergone rapid social changes in recent decades. In the 1950s, the Cameroonian government implemented sedentarization and agriculturization policies that encouraged the Baka to settle alongside main roads (Althabe, 1965; Sato, 1992; Joiris, 1998). Currently, most Baka cultivate plantains in their own fields. Many also cultivate cacao as a cash crop (Hayashi, 2000; Kitanishi, 2003). Yet Baka society cannot be classified as solely one of sedentary agriculture. Every year during the dry season, the Baka enter camp life in the forest, with camp sizes ranging from several people to several families and even, occasionally, the entire settlement (Yasuoka, 2004; 2006a; 2006b).

This paper describes the hunting and gathering activities of the Baka and is organized as follows. The next section outlines Baka society and the research method. Section 3 examines Baka hunting techniques (by snare and gun), and section 4 describes the two types of hunting camps (sedentary and migratory), on the basis of participant observations. Finally, the last section discusses changes in hunting activities under the sedentarization and agriculturalization policies.

Fig. 1. Study site

SUBJECTS AND METHODS

I. Environment

At approximately 500 m in altitude, southeastern Cameroon is largely flat, river-valley land. Semi-deciduous forest dominates the vegetation cover but is occasionally interrupted by large stretches of swamps alternating with grasslands called bai in the western Congo basin. Annual rainfall is approximately 1,500 mm at Yokadouma (Fig. 1) and occurs seasonally, with December through February being the major dry season, March through May the minor rainy season, June through August the minor dry season, and August through December the major rainy season.

II. Baka Pygmies

The Baka have a total population of around 33,000 (Cavalli-Sforza, 1986) and live in the border area of Cameroon, the Republic of Congo, and Gabon. In this population, approximately 25,000 persons (Joiris, 1998) reside in southeastern Cameroon, where this study took place. The Baka speak Oubanguian, part of the Adamawa East language subgroup, unlike neighboring cultivars who speak Bantu languages (Joiris, 2003; Rupp, 2003).

In Cameroon, the Baka shifted towards agriculture in compliance with the sedentarization policies of the French mandate government, beginning in the 1950s and continuing into the period of independence starting in 1960 (Althabe,

1965). Today, Baka settlements are surrounded by swidden plots used for mixed cultivation of plantain and cassava, as well as fields of the cash crop cacao. Many Baka work as wage laborers for wealthy Hausa men, and some Baka also engage in their own cacao cultivation (Hayashi, 2000; Kitanishi, 2003).

As later sections of this paper detail the hunting activities of the Baka, I refer to hunting here only in its relation to agriculture. The agricultural calendar at the settlement greatly influences hunting activity. During the major dry season between December and February, people clear the secondary forests surrounding the settlement to open new fields; they then burn these plots and plant crops. Likewise, most Baka also stay in their settlements to harvest and dry cacao between the September cacao harvest and the shipment of cacao in January and February of the following year. Hunting during this period is limited to snare hunting around the fields, day trips into the forest, and occasional solitary gun hunting.

Fishing techniques range from gill-net and hook-and-line practices by men to group dam fishing by women at a nearby river. Gathered foods include wild yam (*Dioscorea praehensillis* [*sapa*], *D. semperflorens* [*esuma*], and *D. mangenotiana* [*ba*]) during the dry season and seasonal nuts (*Irvingia* spp. [*pekie, payo*] and *Panda oleosa* [*kana*]), fungi, caterpillars (mainly moth larvae), and honey.

III. Study Site and Methods

The study site included N village and its environs, 50 km west of the town of Moloundou in southeastern Cameroon (Fig. 2). N village faces the Dja River, which forms the national border between Cameroon and the Republic of Congo. Forests lie beyond the fields that surround the settlements and the road. Within 15 to 20 km of N village, many of the forests are secondary forests, partially because of commercial logging in the 1970s to 1980s. The Nki National Park, designated in September 2005, begins approximately 20 km to the northeast of N village. (1)

N village has approximately 80 residents, most of whom are Bakwele fisher-cultivators belonging to the Bantu group. Six other settlements, ranging from 20 people in 7 households to 67 in 16 households, lie within approximately 2 km of N village. Approximately 253 Baka live in this area, in 70 households. (2) Other households in the area are composed of Bakwele and groups originating from northern Cameroon such as the Hausa. With the exception of N village, these groups have established residences adjacent to Baka settlements. The non-Baka population, excluding those of N village, is about 80 (Table 1). N village began as a lumberyard site for a logging company between 1973 and 1982. It was during this period that the Baka began to settle and take up cultivation at this location.

I have conducted anthropological research in the N village area since 1998. This paper is based on field research between February and June in 2001 and 2002, during the major dry season and the minor rainy season. My assertions

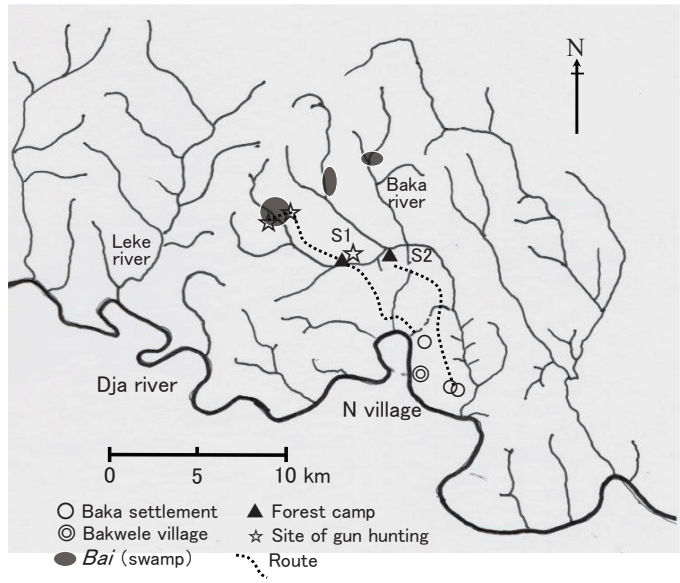

Fig. 2. Map of the area surrounding N village and sedentary camps S1 and S2

Table 1. Census of the research settlements (June 2002)

Settlements	Population (households) by ethnic group			Total
	Baka	Bakwele	Others*	
A	52 (17)	-	-	52 (17)
B	67 (16)	30 (7)	9 (4)	106 (27)
C	45 (15)	-	-	45 (15)
D	39 (8)	-	1 (1)	40 (9)
E	20 (7)	15 (3)	-	35 (10)
F	30 (7)	-	26 (5)	56 (12)
N village		70 (19)	8 (4)	78 (23)
Total	253 (70)	115 (29)	45 (14)	412 (113)

The numbers denote population while those in parentheses show number of households.
* Hausa, Bangando and other ethnic groups that have settled after the establishment of the logging company.

are based on interviews conducted during two periods in sedentary camps and one period in a migratory camp. The languages used in the research were Baka and French. I hired English-speaking translators when necessary.

HUNTING TECHNIQUES

Current Baka hunting techniques mainly involve snares or guns (Sato, 1991; Hayashi, 2000; Yasuoka, 2006a; 2006b). About 30 years ago, when guns were not in daily use, spear hunting is said to have been quite popular. Today, spears are only used for killing bush pigs or duikers cornered with the aid of a dog or reptiles encountered by chance. However, after reaching his youth period (*wanjo*), a Baka man almost always carries a spear when walking in the forest. A spear serves both as a weapon for self-defense and a hallmark of a mature hunter. Net hunting, as once practiced by the Mbuti of the Congo region, fell out of practice among the Baka long ago.

Baka hunting activities are also sometimes at odds with the hunting regulations and conservation areas enacted by the Cameroon government and non-governmental organizations (Hattori, 2005). Thus, as an additional goal of this paper, I hope to contribute to addressing such problems by illustrating the present situation of the Baka.

I. Snare Hunting

Snare hunting is the most common hunting technique employed by the Baka and is said to have been adopted from neighboring cultivators. By the childhood years of the current elders (i.e., in the 1950s and 1960s), steel-wire snares seem to have been in use. Apart from the wire, the snare retains the style of cable snares made from material found in the forest. For small animals such as rodents, the wire loop may be placed vertically (Fig. 3, left), although most loops are set horizontally over holes dug in the ground. When the animal unwittingly steps into the hole, the loop tightens on the foot and springs upward (Fig. 3, right). The snares, after being set on animal trails at intervals of several to tens of meters, are revisited every several days. Near the settlements, the snares are either set around the paths surrounding the swiddens to additionally serve as mechanisms of vermin control or set within approximately 2 km of the settlement as a base. In forest camps, on the other hand, snares are set within a radius of about 2 km from the camp center. The snare lines are placed in several directions to balance out the hunted area.

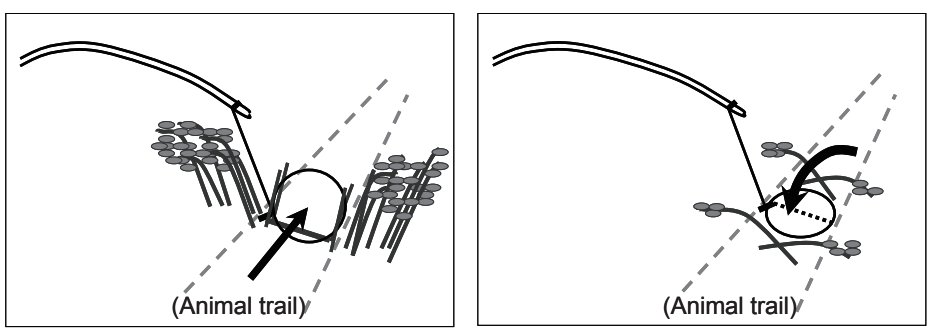

Fig. 3. Two types of snare

The main animals targeted in snare hunting are small- to mid-sized mammals such as duikers and brush-tailed porcupines. Large mammals, such as bush pigs and bongo, are unsuitable targets, as they can sometimes escape the snare. The game is consumed for subsistence or shared among the Baka. Some game items are also sold to cultivators or to fellow Baka, although sales rarely occurred at the study site. Wires may be rented out to youths and those who own less equipment. However, when game is caught, the owner of the catch is the wire owner, not the person who set the snare.

Snare hunting is inefficient for short stays in the forest because of the time lag between the snare setting and capture. However, snares are not particularly difficult to make and can even be made by children. In addition, once set, the hunter only has to periodically check the snare.

II. Gun Hunting

Another major hunting technique is the use of guns. No Baka in the N village area owned a gun during the time of this study; they therefore had to rent guns and ammunition from neighboring cultivators.[3] As with the wire for snares, the owner of the ammunition owns the obtained game. In principle, the main parts of the game (such as the limbs) are given to the owner of the ammunition. In this way, gun hunting is strongly regulated by the Baka's relationship with the cultivators.

Different types of guns are used for certain types of targets.

- Shotguns:
  - plain: monkeys, duikers, bush pigs
  - with attachment (either a short spear [*sala*] inserted at the muzzle or a small piece of lead attached to the cartridge): large animals such as elephants
- Rifles:
  - large animals such as elephants.

At settlements, the main target hunted by gun is arboreal monkeys. Targets at forest camps include large antelope and elephants in addition to monkeys. As shown in Table 2, listing the hunting results at each camp by hunting technique (Table 2), the larger the species, the more likely they are to be hunted by guns.

Gun hunting requires experience and skill, and experts in hunting large game such as elephants and gorillas are called *tuma* and are highly respected. Although the Pygmies are renowned for group hunting techniques involving nets, bows and arrows, or spears (Harako, 1976; Tanno, 1977; Ichikawa, 1983; Terashima, 1983), the Baka's specialization as gun and snare hunters can be seen as a reflection of the influx of individualized hunting methods.

III. Other Hunting Techniques

Although the majority of game animals are hunted with guns or snares, other techniques are also occasionally employed. For instance, dogs accompanying their owner through the forest may corner an animal, which the owner might

Table 2. Hunted game and hunting techniques at the camps

Latin name	English name	Baka name	Weight(kg)*	S1	S2	M	Hunting method**
Loxodonta africana cyclotis	African forest elephant	***ya***	2500 [♀]*			1	G
Tragelahus euryceros	Bongo	***mbongo***	200		1		Sn
Gorilla gorilla	Gorilla	***ebobo***	100 [♀]*			1	G
Potamochoerus porcus	Bush pig	***pame***	60	2	1	6	Sn, G
Cephalophus silvicultor	Yellow-backed duiker	***bemba***	55	1	3		Sn
Cephalophus dorsalis	Bay duiker	***ngbomu***	20	7	8	4	Sn, Sp
Cephalophus callipygus	Peter's duiker	***ngendi***	20	4	17	9	Sn, G, Sp
Felis aurata	African golden-cat	***ebie***	15	1	1	1	Sn
Hyemoschus aquaticus	Water chevrotain	***akolo(geke)***	13	1		1	Sn
Cercocebus galeritus agilis	Agile mangabey	***tamba***	12	1		2	Sn, G, Sp
Colobus guereza	Guereza colobus	***kalu***	11			1	G
Cercopithecus nictitans	Greater white-nosed monkey	***koi***	8		1		Sn
Cephalophus monticola	Blue duiker	***dengbe***	5	13	33	3	Sn, H***
Neotragus batesi	Bates's pygmy antelope	***samba***	5	1			Sn
Manis tricuspis	Tree pangolin	***kokolo***	5		1		H
Bdeogale nigripes	Black-legged mongoose	***buse***	3		2		Sn
Atilax paludinosus	Marsh mangoose	***nganda***	3		1	1	Sn, Sp
Atherurus africanus	Brush-tailed porcupine	***mboke***	3	2	4		Sn
Genetta servalina	Servaline genet	***mboka***	3		1		Sn
Perodicticus potto	Bosman's potto	***katu***	2	1			H
Varanus niloticus ornatus	Nile monitor	***mbanbi***	4			2	Sp
Bitis gabonica	Gabon viper	***buma***	2	1		1	Sp
Kinixys erosa	African hinged-back tortoise	***kunda***	1	1		1	H
Pelusios sp.	Mud tortoise	***lende***	1			2	H
Guttera edouardi	Crested guinea-fowl	***kanga***	1		2		Sn
			Total	36	76	36	

S1, S2 = sedentary camp. M = migratory camp.
* Average weight of the captured animal. The weights of the elephant and the gorilla are estimates.
** Hunting method by the Baka. **G**: Gun, **Sp**: Spear or Machete, **Sn**: Snare, **H**: Hand
*** During camp M, a Baka woman picked up 1 fresh carcass.

kill with a spear or a machete. Men might also use a spear or machete to kill monitor lizards or duikers. Snakes, forest tortoises, mud tortoises, tree pangolins, and tree-dwelling Bosman's pottos might also be killed with a spear or caught by hand.

TWO TYPES OF HUNTING CAMPS

Baka hunting camps can be classified into two types: sedentary and migratory. I observed two sedentary camps (S1, S2) and a single migratory camp (M). For this analysis, I divided the camp periods into phases (e.g., S1[1], S1[2]) according to circumstances such as my observation periods and fluctuations in the members of the camp.

I. Sedentary camps

1. Seasonality and Migration Pattern

During the major dry season of December through February and the minor rainy season from March through May, the Baka sometimes left the settlement to stay for one to three months at forest camps. As these camps were generally in the same place, I refer to them as sedentary camps. I stayed at two camps

in 2001 during the minor rainy season (March 13-April 20) and from the minor rainy season to the minor dry season (May 4-June 11).

By linear distance, camps S1 and S2 were 9.1 and 7.7 km, respectively, from the settlement. Both camps were established along a tributary of the Baka River, northwest of the settlement (Fig. 2), and could be reached in day trips from the settlement.

2. Composition of the Camp Members

The members of sedentary camp S1 consisted of three middle-aged (*kobo*) male hunters from settlement D and their kin. The central members of S2 were from six households and included six male hunters from settlement A, as well as the household of a male hunter from settlement B. The central male members were middle-aged and included *tuma* (expert hunters). These central members participated throughout the camp period.

As shown in Table 3, during the early phases (S1[1] and S2[1][(4)]), both S1 and S2 consisted only of males, including children involved in hunting activities. Later, the members returned to the settlement to replenish their supply of farm produce and stayed there for several days. After returning to the camp, the several middle-aged core hunters then remained at the camp for its duration. Women and children, on the other hand, fluctuated in number. After clearing secondary forest patches for swidden during the first half of the dry season, middle-aged Baka men hurried back to the forest. Middle-aged women then planted the swidden plots; only after finishing the planting did women join the camp, bringing farm produce with them. Compared to older (middle-aged) Baka hunters, younger Baka, regardless of sex, tended to be more engaged in other activities such as clearing and planting their fields, clearing fields for other ethnic groups, or working at cacao plantations. Only some of the younger people joined the forest camps, and their stays were relatively short.

Table 3. Periods and compositions of camps S1 and S2 (2001)

	Camp S1				Camp S2				
Period	S1[1]	S1[2]	S1[3]	S1[4]	S2[1]	S2[2]	S2[3]	S2[4]	S2[5]
Distance from settlement* (km)	9.1				7.7				
Period from	13 Mar.	01 Apr.	12 Apr.	21 Apr.	middle of Mar.	04 May	16 May	30 May	12 Jun.
to	25 Mar.	11 Apr.	20 Apr.	03 May	30 Apr.	15 May	29 May	11 Jun.	26 Jun.
Days	13	11	9	2***	10-15?	12	14	13	5***
Adult men**	6	4-8	6-7	4	4-6	4-6	5-7	6-7	4-5
Adult women	0	2-3	3	0	0	1-4	4-9	8-12	0
Children	3	6-14	9-13	0	0	1	5-10	3-13	0
Bangando	0	0	1	0	0	0	0	0	0
Total	9	12-25	19-24	4	4-6	6-11	14-26	17-32	4-5

* Linear distance from settlement.

** Ages 16 and above grouped as adult..

*** Includes the trip back to the settlement.

3. Snare Hunting

(1) Hunters

Two guns were brought into camp S1 during the S1[2] period. Three people, including two *tuma*s, then alternated between gun and snare hunting. The snare hunters were seven adult men and three children. After the traps had been set, they were checked mainly by the youths without guns. The animals found in the snares were often brought into the camp by the youths and butchered.[(5)] Although camp S2 also included *tuma*, hunting activities were limited to snare hunting, as the camp members had been unable to borrow a gun. In S2, seven males, including one child, hunted with snares. The six adults were all married and checked the snares they had set by themselves.

(2) Setting the Snares and the Catch

Snare catches accounted for 31 (86%) of the total of 36 animals caught during S1 and 75 (99%) of the 76 caught during S2 (Table 4). These high percentages indicate that snares are central in the sedentary camps.

Table 4. Number of game animals caught, according to hunting technique

	Camp S1	Camp S2	Camp M
Snare	31	75	14
Gun	2	0	11
Spear, Machete	1	0	7
Hand	2	1	4
Total	36	76	36

In camp S1, the snares were set by 10 males, including children. During the camp period, more snares were set. The maximum total number of snares was 213; the number of snares per person ranged from 5 to 40, averaging 21. In S2, seven adult men set a maximum of 260 snares, and the number of snares per person ranged from 18 to 71, with an average of 37 (Table 5).

As indicated in Table 6, snares were set in the initial phases of camps S1 and S2 (S1[1] and S2[1]). More snares were then set during the middle of the

Table 5. Snares per camp period and person

	Duration* (days)	Snare hunters (persons)	Maximum number of snares	Snares per hunter
Camp S1	36	10	213	5-40
Camp S2	38	7	260	18-71
Camp M[3]	28	6	138	7-36

* Number of hunting days on which the snares were set.

Table 6. Hunting activities during camps S1 and S2, and the number of game animals caught

	Camp S1				Camp S2				
Period	S1[1]	S1[2]	S1[3]	S1[4]	S2[1]	S2[2]	S2[3]	S2[4]	S2[5]
Snare hunters*	9	5-10	10-11	10	4-6	4-5	5-7	6-7	7
Snares	160	180	213	196	184	228	252	260	260
Guns	0	2	2	0	0	0	0	0	0
Number of game animals	15	7	12	2	(18)	8	21	19	10
Total number of game animals	36				76				

* The makers of snares, including children, were counted as hunters.

camp periods, after men had returned from visiting the village and brought back additional supplies of wire. After setting the snares (S1[1]-S1[3], S2[1]-S2[4]), game was captured throughout the stays in the forest.

Camp S1 disbanded on 20 April after an order from a forestry officer and guards who discovered the camp while on patrol.[6] Nevertheless, several men continued to check the snares from the settlement (S1[4]). Continuing to check the snares after disbandment of the camp is a characteristic of the sedentary camps, also occurring after camp S2 (S2[5]) disbanded.

(3) Target Species

Of all the game caught by snare hunting during S1, duikers made up 77% of the total catch (24 of 31 animals) and included red duikers (4 Peter's duikers and 7 bay duikers; 35% of the total catch) and blue duikers (13, 42%). Likewise, during S2, red duikers made up 33% of the catch ([17+8]/75) and blue duikers made up 44% (33/75), comprising 77% of the total catch of 75 animals (Table 7).

Table 7. Number of animals captured in snares

	Camp S1	Camp S2	Camp M
Peter's duiker	4	17	7
Bay duiker	7	8	2
Blue duiker	13	33	2
Other mammals	7	15	2
Reptiles	0	0	1
Fowl	0	2	0
Total	31	75	14

Duikers are frequently caught and shared among the Baka, as well as consumed for subsistence. They are also more frequently sold than other species. During my research, whole blue duikers sold for about 1,000 CFA (=1.53 Euro) and half a red duiker for 1,500 CFA (=2.29 Euro).

4. Gun Hunting

Two guns were brought into camp S1 during period S1[2], and the two *tuma*s began using them for hunting (Table 8). One gun was borrowed from a male Bangando cultivator who joined the camp midway through the camping period and the other was borrowed from a Bakwele from N village. Expeditions were made from camp S1 to a bai (Fig. 2) to hunt elephant, but two attempts ended in failure. After the failed elephant hunts, two bush pigs were killed in a single expedition.

Camp S2 also included *tuma* experienced in gun hunting. However, as the camp members could not borrow a gun during that camp period, no gun hunting took place.

Table 8. Gun hunters at camp S1 and their catches

Hunter	Cartridges in posession	Shots fired* (successful hit)	Animals captured (Attempted)
a (*tuma*)	6	1(0)	(African forest elephant)
b (*tuma*)	4	1(1)	Bush pig
c	4	0	—
Total	14	2(1)	

* All shots were fired from two guns.

5. Procurement of Starchy Food

During the first period of sedentary camps S1 and S2, when the members consisted of males only, the members mainly depended on plantains brought from the settlements as their staple food. The frequent visits between the settlements and the camps by young men provided opportunities to replenish the supply of agricultural food at the camp. Later, as women joined the camps and the number of members increased, the ratio of wild yams (which are gathered mainly by women) also increased. During S2[4], the decrease in the gathering efficiency of wild yams, due to the seasonal trend and resource depletion, accounted for the termination of the camp (Table 9).

Table 9. Procurement of starchy food at camps S1 and S2

	Camp S1				Camp S2				
Period	S1[1]	S1[2]	S1[3]	S1[4]	S2[1]	S2[2]	S2[3]	S2[4]	S2[5]
Yam gathering*	12	21	14	-	-	9	23	41	-
Sub-total yam (kg)	68.9	88.9	196.9	-	-	16.6	102.3	70.1	-
Avagare yams gathered (kg)**	5.7	4.2	14.1	-	-	1.8	4.4	1.7	-
Replenishment of agricultural food*	9	10	5	-	-	9	12	11	-

Data unavailable for periods S1[4], S2[1] and S2[5].

* Calculated as the sum of persons engaged in this activity each day.

** Per person per day.

II. Migratory Camp

As described above, the sedentary camps are the more common type of Baka hunting camp. Occasionally, however, migratory camps are also formed. Such campsites are gradually relocated throughout the stay in the forest. Such camps are called *molongo* in the Baka language (Yasuoka, 2006a). I accompanied a migratory camp between March 14 and April 21 during the minor rainy season of 2002.

1. Seasonality and Migration Pattern

As illustrated in Fig. 4, the location of the camp shifted, ranging from 9.3 to 23.3 km from the settlement in linear distance.[7] Camps were set at the same place during periods M[1] and M[8], M[3] and M[7], and M[4] and M[6]. During the first phase, M[1], the party slept one night at the site without any hunting activity. During M[2], the camp was set up along the Bemba River, where the group stayed for about 10 days. During that time, the men mainly gathered honey while the women engaged in dam fishing and gathering of wild yams. Yam depletion in the vicinity of the camp is said to have prompted migration to the subsequent camp.

The initial destination of the party had been M[3], on the bank of *Lengwe*[8] River. This location was said to have ideal fishing grounds during the dry season as well as a nearby patch of yams. At the beginning of the riverside stay, both men and women engaged in fishing (hook-and-line and gill-net [*seli*] methods) and yam gathering. On the fifth day, all the members except the gun hunters and their companions participated in poison fishing.[9]

At the beginning, it seemed that a lengthier stay was planned along the Lengwe River at M[4] for various activities including fishing, yam gathering, and hunting. However, the schedule changed when new members arrived. The following section describes the transitions of the migration pattern based on changes in the member composition and hunting activities.

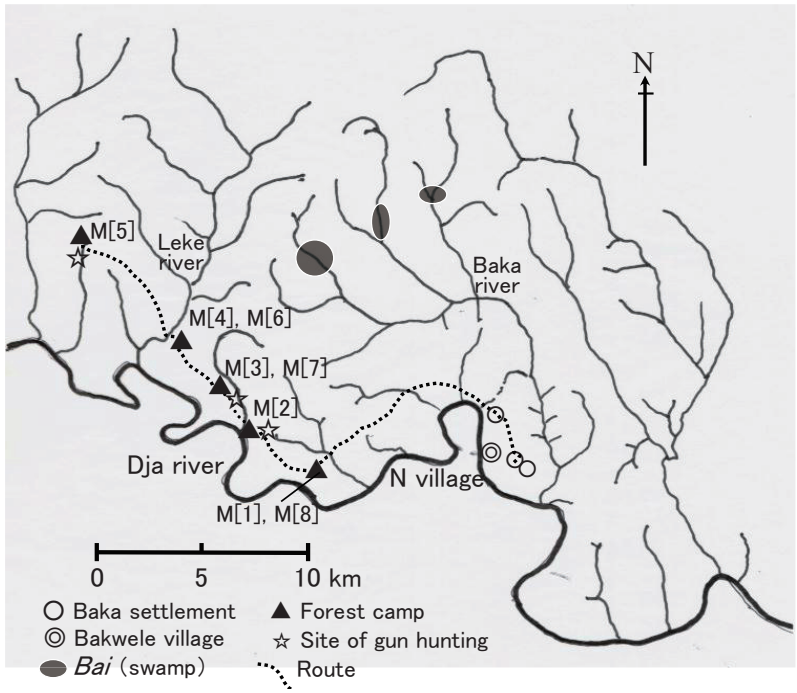

Fig. 4. Migratory camps M[1] through

2. Member Composition

Migratory camp M consisted mainly of residents from the Baka settlement C. This was a rare case in which whole households, including adult men, women, and children, joined the camp from the beginning of the migration into the forest (Table 10). However, part of the younger generation had stayed behind and joined the group halfway into period M[3]. During M[4], four other people joined from settlement A.

Table 10. Period and composition of camp M (2002)

	Camp M							
Period	M[1]	M[2]	M[3]	M[4]	M[5]	M[6]	M[7]	M[8]
Distance from settlement (km)	9.3	13.7	15.7	18.2	23.3	18.2	13.7	9.3
Period from	the end of Feb.	the end of Feb.	10 Mar.	09 Apr.	15 Apr.	18 Apr.	20 Apr.	21 Apr.
to		09 Mar.	08 Apr.	14 Apr.	17 Apr.	19 Apr.	20 Apr.	23 Apr.
Days	1	9-10?	30	6	3	2	1	3
Adult men	4	3-4	4-9	9-12	12	12	9	6
Adult women	8	7-8	8-11	11-12	12	12	12	9
Children	6	6	6-8	8	8	8	8	5
Total	18	16-18	18-28	28-32	32	32	29	20

3. Snare Hunting

At camp M, snare hunting was most intense during the one-month period of M[3]. During that time, snare hunting took place almost every day (Table 11). Snare hunting at M[3] involved six people (four wire owners and two children) setting a maximum of 138 snares. The number of snares set per person ranged between 7 and 36, with an average of 23.0 (Table 5). The setting of snares began soon after arrival at M[3]. Five days later, the first game animal was caught. Almost all snares were removed and the wires retrieved on April 9, before migration to M[4]. At the M[4] site, group members had planned to set snares and stay for a long time. However, as yam gathering and fishing consumed much effort on arrival, and the party soon moved on to M[5], having done almost no snare hunting.

Table 11. Hunting during Camp M

	Camp M							
Period	M[1]	M[2]	M[3]	M[4]	M[5]	M[6]	M[7]	M[8]
Snare hunters	-	-	6	1	-	1	-	-
Snares*	-	-	138	4	-	4	-	-
Guns	2	2	2	3	3	3	1	1

* The makers of snares were counted as hunters.

Out of 36 animals caught at M, 14 were caught in snares; this amounted to only 40% of the total catches (Table 4). Other catches included mud tortoises on the river bank and several duikers cornered by dogs. Another 11 mostly small animals were obtained by spear, machete, or bare hands. Of the animals caught in the snares, 64% were red duikers (7 Peter's duikers, 2 bay duikers) and 14% were blue duikers (2; Table 7).

4. Gun Hunting

Two *tuma*s borrowed guns from different Bakwele and used the guns to kill a gorilla and two bush pigs during M[2]. Another two men, who only had cartridges, borrowed the guns from the *tuma*; one killed a Peter's duiker and the other a colobus (Tables 12, 13).

Table 12. Results of hunting during Camp M

	Camp M								
Period	M[1]	M[2]	M[3]	M[4]	M[5]	M[6]	M[7]	M[8]	Total
Snares	-	-	13	-	-	1	-	-	14
Guns	-	3	6	-	2	-	-	-	11
Others	-	-	6	3	-	2	-	-	11
Total	-	3	25	3	2	3	-	-	36

Table 13. Gun hunting at Camp M and catches

Hunter	Cartridges* in posession	Shots fired** (succesful hits)	Species captured (attempted)
d (*tuma*)	8	5 (4)	1 Gorilla, 2 Bush pigs 1 Agile mangabey (African buffalo)
e (*tuma*)	7	4 (4)	4 Bush pigs
f	4	1 (1)	1 Guereza colobus
g	1	1 (1)	1 Peter's duiker
h (*tuma*)	6	4 (1)	1 African forest elephant
Total	26	15 (11)	

* In the case of hunter h, bulets rather than cartridges were used.

** Fired from 3 guns.

During the stay at M[3], several men returned to the settlement with part of the smoked meat. The gorilla and bush pigs that had been hunted with guns, however, were said to have been sent to the Bakwele owner of the cartridges, with only portions left for the Baka.

Elephants and gorillas accounted for 11 and 30% of the total catches, respectively. The success rate for shots at camp M was 73% (11 of 15 shots taken).

During period M[4], elephant hunting, a peculiar hunting technique of the Baka took place. On April 11, the third day of M[4], four men and women whose main purpose was elephant hunting joined the camp from settlement M1. Included in the new members was a *tuma*, who brought along a rifle. He was met by his younger brother (also a *tuma*) who was at the camp and who had borrowed a shotgun. These two, accompanied by another two men, set out on a gun-hunting expedition the following day, tracking elephant footprints into the forest. Later, in the evening of April 13, a female elephant was killed near the Moliji River. By the afternoon of the following day, one of the men reached camp M[4] to inform the members of the kill. Early the next morning (April 15), all the members started moving towards the site of the elephant kill.

The successful elephant hunt relocated the camp from M[4] to M[5]. At M[5], men butchered the elephant and smoked the meat. Because of the massive amount of meat, some was consumed at the site, while the rest was smoked to reduce its weight. On the second and third days at M[5], some members went to gather wild yams and honey, while others stayed at the camp to continue the smoking process.

Having secured a huge amount of meat from the elephant kill and having nearly depleted the yam supply near the campsites, the camp members decided to return to the settlement. On the way back, three final nights were spent at a campsite near the settlement. I wondered why they had delayed their return. Some days later, after we had returned to the settlement, one of the women explained. “If we had returned to the settlement, we would have ended up

sharing meat with a lot of people. In the forest we could eat as much as we wanted."

Upon returning, every household shared part of their meat with their kin. This left them with only small amounts, and the meat did not reach the entire Baka population of the N village area. Approximately 40 kg of thoroughly smoked elephant meat and the two tusks were also surreptitiously handed over to the Bakwele client during the night at the settlement.

5. Procurement of Starchy Food

As the migratory camps were set up far from the settlement, the staple food supply was wild yam, as well as some agricultural products brought in initially. The linear distance between M[3] and the settlement was 15.7 km, a distance not easily covered even among the Baka. This distance made frequent replenishment of agricultural supplies difficult. Thus, additional supplies depended on rare traffic between the camp and the settlement, or on new members joining, as in period M[3]. However, from periods M[4] to M[6], the chief staple food was gathered wild yams (Table 14).

Table 14. The frequency of yam gathering and replenishment of agricultural products

	Camp M			
Period*	M[3]	M[4]	M[5]	M[6]
Days yam were gathered	13	4	2	1
Number of yam gatherers**	56	63	20	14
Replenishment of agricultural food**	21	0	0	0

Yam weights are unavailable for the M camp periods.

* Data from March 15 to April 8, during participatory observation.

** Calculated as the sum of persons engaged in this activity each day.

DISCUSSION

I. Hunting Activities in the Forest Camps

As illustrated above, the Baka engaged in two main types of hunting at the sedentary and migratory camps: snare and gun hunting. A comparison of camp characteristics shows that snare hunting was central in the sedentary camps. In the migratory camps, gun hunting produced more frequent catches, although snare hunting was also conducted. The activities of particular hunters were also more conspicuous in gun hunting.

Snare hunting requires several days between setting the snare and when catches begin to take place. This makes the technique less efficient for short stays. However, once the snares have been set, in principle, the hunter only has to keep checking the snares. That snare checking continued after disbandment of the camps, as shown after camps S1 and S2, is evidence of a strategic connection between the settlements and the camps in hunting activity. Duikers, with the highest catch efficiency, were the most common game. They were mainly consumed for subsistence but were also used as objects of customary sharing among the Baka. In some cases they were also sold for valuable cash income.

Gun hunting, on the other hand, not only required access to guns and ammunition but also skill and experience, which limited the hunters who could employ the technique. Mid- or large-sized mammals such as elephants and bush pigs are highly favored in gun hunting, both for the taste of their meat and the large amount of meat that can be shared. However, as most gun hunts involve consignments from the owner of the gun (who is the owner of the ammunition), most of the meat obtained is transferred to the owner of the gun (and ammunition). Hence, gun hunting requires patron relationships with the Bakwele and other ethnic groups, the providers of guns and ammunition. Furthermore, gun hunts require specialized hunters, such as *tuma*. The Baka's gun and snare hunting techniques are also notably individualistic, unlike the net, bow-and-arrow, and spear group-hunting methods reported in other Pygmy groups. The specialization of hunters reflects the influx of individualistic techniques among the Baka.

II. Comparison of the Two Camp Types

Sedentary camps have fixed campsites. This allows for the stable operation of snare hunting, which requires a certain amount of time before catches begin to occur. The proximity of campsites to the settlements facilitates frequent traffic between the two, thus enabling camp dwellers to rely on agricultural food brought from the settlements. Life at the sedentary camp can be regarded as an extension of life of settlement.

Table 15. Comparison of the two camp type

	Camp Site	Migration Pattern	Major Hunting Technique	Main means of procuring starchy food
SEDENTARY CAMP	Fixed near the settlement	Men migrate first; women and children follow (traffic between camp and settlement)	Snare hunting (targets small animals such as duikers)	Agricultural food, such as bananas (plantains) supplied from the settlement
MIGRATORY CAMP	Migrates farther from the settlement	Starts off in family groups	Gun hunting (targets large animals such as elephants), fishing	Gathering of wild yam

Migratory camps, on the other hand, frequently change location. Snare hunting is not as suitable in this situation because results cannot be expected in the short term. Conversely, by moving deeper into the forest, the hunters can hunt at the bai, where large animals congregate. Killing just one large animal could thus result in a massive amount of meat. Such hunting activities are often combined with fishing. As the campsites are far from the settlements, the camp members must rely more on wild yams gathered from around the campsite. The depletion of nearby yams prompts the move to another campsite. With the exception of the M[5] campsite, the decision to return to the settlement seemed be made either when plenty of meat had been secured or when yam gathering had become difficult.

By selectively employing these two different types of hunting camps, the Baka continue to engage in life in the forest. Sedentary camps may have been more heavily influenced by agriculturalization and sedentarization policies. As discussed by Yasuoka (2006a), however, whether migratory camps (*molongo*) are closer to the Baka lifestyle before sedentarization deserves further examination.

III. Influence of Agriculture on Hunting

The Baka show strong persistence regarding their forest activities. Nevertheless, these activities are constrained greatly by their agricultural activities. For one, their main starchy food supply at the sedentary camps is cultivated plantains. The migratory camps could depend entirely on wild yams. However, as noted by Sato (2006) and Yasuoka (2006a), more investigation of the entire study area is needed to better understand the potential utility of wild yams in the forest. Furthermore, the camp periods are constrained by the agricultural calendar. Most Baka stay in their settlements to open new fields in the dry season and to cultivate cacao in the rainy season.[(10)] The periods of sedentary life and hunting-gathering in the forests thus appear to complement each other.

The Baka, while receptive to agricultural activities, have maintained their lifestyle centered on hunting, gathering, and fishing in their forest camps. They have constructed an original survival strategy adaptive to both natural and social environments as sedentarized hunter-gatherers.

ACKNOWLEDGEMENTS The field research is financially supported by the Grants-in-Aid for Scientific Research (nos. 12371004, headed by Prof. Mitsuo Ichikawa and nos. 13371006, headed by Dr. Kiyoshi Takeuchi) from the Ministry of Education, Culture, Sports, Science and Technology, Japan. I would like to express my heartfelt thanks to Prof. Ichikawa of the Graduate School of Asia and African Area Studies, Kyoto University and Dr. Takeuchi of Toyama University. Dr. Kimura of the Graduate School of Asia and African Area Studies, Kyoto University and Prof. Ikeya of National Museum of Ethnology gave me great help and kind advice with my carrying out of this study.

I also thank all Baka friends who so warmly welcome and helped me during my stay among them.

NOTES

(1) During this research, the park was planned but had not yet been established.
(2) As of June 2002.
(3) The Baka, however, occasionally buy ammunition themselves.
(4) The classification of the periods is based on my opportunities to conduct participant observation and on large changes in member composition, centering on women.
(5) Strictly speaking, the owner of the game was the owner of the wire. In all three cases observed, however, the snare makers were regarded as the virtual game owners, as strong kinship and intra-settlement bonds prevailed among camp members.
(6) According to an article of Cameroonian law (94-01), snare hunting with a wire and gun hunting without permission are prohibited. After the seizure, the meat, guns, and wires were confiscated. However, the guns and wires were returned to the owners a few days later.
(7) I did not accompany the first phases (M[1], M[2]) and the final phase (M[8]) of the migratory camp; however, I confirmed the site locations and activities through interviews.
(8) On the map (Fig. 4), this river is labeled Leke, but the Baka call it *Lengwe*.
(9) A fishing technique in which the bark of *asama* (*Turraeanthus africanus*) trees is grated and poured into the river. This is said to be a relatively rare technique that is only employed in the *Lengwe* River.
(10) The rainy season is not ideal for hunting and gathering, as migration and camping in the forest become difficult and there is the added risk of falling trees. Moreover, as yams are not harvested during the rainy season, the period is also unsuitable for food procurement.

REFERENCES

Althabe, G. 1965. Changements sociaux chez les Pygmées Baka de l'est Cameroun. *Cahiers d'Etudes Africaines*, 5(20): 561-592.

Bahuchet, S. 1985. *Les Pygmées Aka et la Forêt Centrafricaine: Ethnologie Ecologique.* SELAF, Paris.

Cavalli-Sforza, L.L. 1986. *African Pygmies.* Academic Press, New York.

Dorst, J. & P. Dandelot 1972. *Guide des Grands Mammifères d'Afrique*. Delachaux et Niestlé.

Harako, R. 1976. The Mbuti as hunters: A study of ecological anthropology of the Mbuti Pygmies (1). *Kyoto University African Studies*, 10: 37-99.

Hattori, S. 2005. Nature conservation and hunter gatherers' life in Cameroonian rainforest. *African Study Monographs Supplementary Issue,* 29: 41-51.

Hayashi, K. 2000. Hunting and gathering activities of the Baka in southeastern Cameroon: The actual condition and contemporary significance. (in Japanese). *Human and Science*, 14: 27-38.

Ichikawa, M. 1983. An examination of the hunting-dependent life of the Mbuti Pygmies, Eastern Zaire. *African Study Monographs*, 4: 55-76.

Joiris, D.V. 1998. *La Chasse, la Chance, le Chant. Aspects du Système Rituel des Baka du Cameroun.* Thèse de doctorat, Université Libre de Bruxelles.

———————— 2003. The framework of Central African hunter-gatherers and neighbouring societies. *African Study Monographs Supplementary Issue,* 28: 57-79.
Kitanishi, K. 1995. Seasonal changes in the subsistence activities and food intake of the Aka hunter-gatherers in northeastern Congo. *African Study Monographs*, 16 (2): 73-118.
———————— 2003. Cultivation by the Baka hunter-gatherers in the tropical rain forest of central Africa. *African Study Monographs Supplementary Issue*, 28: 143-157.
Noss, A.J. 2000. Cable snares and nets in the Central African Republic. In (J. Robinson & E. Bennett, eds.) Hunting for Sustainability in Tropical Forests, pp. 282-304. Columbia University Press, Columbia.
Rupp, S. 2003. Interethnic relations in southeastern Cameroon: Challenging the "hunter-gatherer"-"farmer" dichotomy. *African Study Monographsm Supplementary Issue*, 28: 37-56.
Sato, H. 1991. Baka Pygmies: The sedentarized hunter-gatherers (in Japanese). In (J. Tanaka & M. Kakeya, eds.) Natural History of Human Being, pp. 544-566. Heibon-sha, Tokyo.
———————— 1992. Notes on the distribution and settlement pattern of hunter-gatherers in northwestern Congo. *African Study Monographs*, 13(4): 203-216.
———————— 2006. A brief report on a large mountain-top community of Dioscorea praehensilis in the tropical rainforest of southeastern Cameroon. *African Study Monographs Supplementary Issue*, 33: 21-28.
Takeuchi, K. 1991. The social identity of the Aka: A case of sedentary settlements (in Japanese). In (J. Tanaka & M. Kakeya, eds.) *Natural History of Human Being*, pp. 415-439. Heibon-sha, Tokyo.
———————— 1995 Subsistence hunting in African tropical forests: Hunting techniques and activities among Aka hunter-gatherers, northeastern Congo (in Japanese). *Zooarchaeology*, 4: 27-52.
Tanno, T. 1977. The Mbuti net-hunters in the Ituri forest, eastern Zaire: Their hunting activities and band composition. *Kyoto University African Studies*, 10: 101-135.
Terashima, H. 1983. Mota and other hunting activities of the Mbuti archers: A socio-ecological study of subsistence technology. *African Study Monographs*, 3: 71-85.
Yasuoka, H. 2004. Subsistence of the Baka in northwestern Congo basin: An example of pure foraging life in tropical rain forests (in Japanese). *Asian and African Area Studies*, 4(1): 36-85.
———————— 2006a. Long-term foraging expeditions (*molongo*) among the Baka hunter-gatherers in the northwestern Congo basin, with special reference to the "wild yam question". *Human Ecology*, 34(2): 275-296.
———————— 2006b. The sustainability of duiker (*Cephalophus* spp.) hunting for the Baka hunter-gatherers in southeastern Cameroon. *African Study Monographs Supplementary Issue*, 33: 95-120.

———— Accepted December 25, 2007

Author's Name and Address: *Koji HAYASHI, National Museum of Ethnology, Osaka, 565-8511, JAPAN.*
E-mail: elephant_tuma@hotmail.com